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Missouri State Auditor

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STATEWIDE

Information  
Technology  
Procurement and  
Management Practices



## **Improvements Are Needed in the Management and Oversight of Computers**

Because of the important role computers play in state operations, we focused audit efforts on determining whether (1) state agencies have adequately accounted for stored computer equipment, (2) improvements are needed in the procurement of computers, and (3) agencies have addressed information technology (IT) strategic planning. We also reviewed the Office of Administration's (OA) efforts to consolidate IT operations.

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Agencies did not always account for stored computers and records not always accurate

Our review of seven agencies disclosed none of the organizations could account for all spare/surplus computers where internal or SAM II records show a storeroom or warehouse location. In addition, inaccuracies existed on internal and SAM II records. This situation occurred because personnel either failed to (1) track and account for spare/surplus computers, or (2) update internal and SAM II records accurately, or in a timely fashion. (See page 6)

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Improvements needed in procurement of computers

Improvements are needed in the procurement of computer equipment because not all agencies reviewed had formalized procurement guidance or policy. Some agencies also had not considered the cost-effectiveness of computer warranties, or of leasing computers in lieu of purchasing computers. In addition, some agencies lacked formal policies on how often to replace computers and for the removal of information from computers prior to disposal. (See page 14)

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Most agencies developed IT strategic plans

Our review of seven agencies disclosed six—Transportation, Natural Resources, Mental Health, Corrections, Social Services, and the Public Defender's Office—had developed IT strategic plans. However, Health and Senior Services had not developed an IT strategic plan. (See page 17)

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IT operations consolidated

With OA's consolidation of state IT resources, the state's Chief Information Officer is taking action to address IT strategic planning, standardization of procurement policy and procedures, and IT equipment ownership. OA's actions, if successfully implemented, should improve IT operations. (See page 18)

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## Abbreviations

CIO	Chief Information Officer
CSR	Code of State Regulations
IT	Information Technology
ITSD	Information Technology Services Division
OA	Office of Administration
RSMo	Missouri Revised Statutes
SAM II	Statewide Advantage for Missouri II
SAO	State Auditor's Office



**CLAIRE McCASKILL**  
**Missouri State Auditor**

Honorable Matt Blunt, Governor  
and  
Michael Keathley, Commissioner  
Office of Administration  
and  
Cathy Kelly, Acting Director  
Missouri State Public Defender  
and  
Pete K. Rahn, Director  
Department of Transportation  
Jefferson City, MO 65102

State agencies purchased approximately \$59 million in computers and information technology (IT) related equipment during fiscal year 2005. Of that amount, approximately \$35 million related to personal computers, laptops and servers. Because of the important role computers play in state operations, we focused audit efforts on determining whether (1) state agencies have adequately accounted for stored computer equipment, (2) improvements are needed in the procurement of computers, and (3) agencies have addressed IT strategic planning. We also reviewed the Office of Administration's (OA) efforts to consolidate IT operations.

We found improvements are needed in the state's management and oversight of computers. Improvements are needed because agencies reviewed did not always account for computers stored at warehouse locations, and because inaccuracies exist on internal records and the state's financial record system. Improvements are also needed in the procurement of computer equipment because not all agencies have formalized procurement procedures. Some agencies also lack policies on computer replacement and the removal of information from computers prior to disposal. In addition, one agency had not adequately addressed IT strategic planning. OA officials are taking action to consolidate IT operations which, if successfully implemented, should improve procurement and strategic planning. We have made recommendations to improve the accountability and procurement of computer equipment.

We conducted our audit in accordance with applicable standards contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and included such procedures as we considered necessary in the circumstances. This report was prepared under the direction of John Blattel. Key contributors to this report included Robert Spence, Brenda Gierke, and Nicki Russell.

A handwritten signature in black ink that reads "Claire McCaskill".

Claire McCaskill  
State Auditor

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# Introduction

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In January 2005, Executive Order 05-07 initiated a statewide consolidation of information technology (IT) services by combining the Office of Administration's (OA) Office of Information Technology and the Division of Information Systems to create the Information Technology Services Division (ITSD) to avoid duplication of activities and administrative costs. The Governor appointed a new Chief Information Officer (CIO) in January 2005 to oversee the new organization and to direct consolidation efforts. On July 1, 2005, consolidation of information technology personnel and resources from 14 state agencies under the direction of the state CIO commenced. The Departments of Conservation and Transportation, as well as other entities, such as the Missouri State Public Defender's Office (Public Defender's Office), governed by commissions, are not included in the information technology consolidation. In addition, entities not under the Governor, such as elected officials and the state courts system, are not included in the consolidation.

Consolidation of IT services is being accomplished over a 2-year period. On June 16, 2006, IT personnel in the following 13 agencies became ITSD employees under the authority of the state CIO: Agriculture, Economic Development, Elementary and Secondary Education, Health and Senior Services, Labor and Industrial Relations, Natural Resources, Mental Health, Public Safety, Social Services, Corrections, Higher Education, Insurance, and the OA. In fiscal year 2007, the CIO received budget authority over IT related appropriations for these agencies, and the Department of Revenue's information technology personnel and IT related appropriations were consolidated into the ITSD.

Major initiatives include the consolidation of statewide networks, consolidation of email within the consolidated agencies, reduction of Missouri state government telecommunication costs and reduction of fixed and variable costs associated with the operation of the State Data Center. In addition, the consolidation transfers oversight of purchases, job vacancies, work schedules, dress codes, expense accounts, out-of-state travel requests, overtime, and compensatory time to the ITSD.

Prior to consolidation, state agencies independently made decisions on purchasing, tracking and disposing of IT equipment with each having individual IT personnel and budgets.<sup>1</sup> Expenditures by the state for

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<sup>1</sup> OA had indirect authority over purchasing IT equipment prior to consolidation through approving and awarding statewide contracts for the procurement of computer equipment.

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## Scope and Methodology

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computers, laptops and servers in fiscal years 2004 and 2005 totaled approximately \$37 million and \$35 million, respectively.<sup>2</sup>

We selected agencies for review based on the amount of expenditures for computers and the number of computers in storage in fiscal year 2004. We obtained records of computers in storage<sup>3</sup> from SAM II fixed asset records (SAM II records), and computer expenditure amounts from SAM II expenditure records. We conducted work at the following state agencies: Corrections, Health and Senior Services, Natural Resources, Mental Health, Social Services, Transportation and the Public Defender's Office.

To determine whether agencies had properly accounted for stored computers, we reviewed internal controls for purchasing, recording, tracking and disposal of computer equipment. We also conducted tests on computers with a warehouse or storeroom location on internal and/or SAM II records, including (1) physically counting stored computers and comparing to internal and/or SAM II records, (2) determining whether all stored computers could be accounted for, and (3) determining the accuracy and completeness of internal and/or SAM II records.

Although all state agencies are required to record fixed assets costing more than \$1,000 on SAM II records, some agencies reviewed also maintained internal records to track and monitor the status and location of computer equipment. We conducted testing for stored computers using both SAM II and internal records for Social Services, Mental Health and the Public Defender's Office. For the other agencies, we tested using only SAM II records.

To determine the adequacy of the procurement and management of computer equipment, we reviewed agency policies, procedures, and control systems in place for the procurement, management and disposal of computer equipment. We also reviewed state regulations governing tracking and accounting for computer equipment.

To determine the adequacy of the strategic planning process related to computer equipment, we reviewed ITSD's IT Strategic Plan, service level agreements between ITSD and state agencies, and IT strategic plans developed by state agencies. We also reviewed guidance developed by the

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<sup>2</sup> IT expenditures in SAM II records for fiscal years 2004 and 2005 totaled approximately \$58 million and \$59 million, respectively.

<sup>3</sup> Stored computers refers to older desktops, laptops and servers kept in storage which are used to replace others that malfunction (spares), or computers ready to be sold (surplus).

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IT Governance Institute which assists organizations in the development of clear policy and good practices for IT strategic planning.<sup>4</sup>

To determine whether OA's goals and strategies to consolidate IT operations address IT strategic planning, standardization of policies and equipment ownership, we interviewed ITSD personnel and reviewed records provided by the CIO.

We did not verify the reliability of data by testing SAM II records using source documents. However, we verified the accuracy and completeness of those records by testing computer equipment in warehouses and storerooms.

We requested comments on a draft of our report from the ITSD's CIO, Agency Directors, and the Acting Director of the Missouri State Public Defender's Office. We conducted audit work between March 2005 and February 2006.

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<sup>4</sup> Control Objectives for Information and related Technology, developed by the IT Governance Institute, is recognized internationally as standards for control over information, IT and related risks.

# Opportunities Exist to Improve Management and Oversight of Stored Computers

Improvements are needed in the management and oversight of the state's computer equipment. Improvements are needed because state agencies have not always (1) accounted for all computer equipment in storerooms and warehouses, (2) formalized procurement policies and/or guidance, and (3) developed IT strategic plans. OA is taking steps to consolidate IT operations for 14 state agencies which, if successfully implemented, should address IT strategic planning, standardization of procurement policy and procedures, and IT equipment ownership.

## Agencies Did Not Always Account for Stored Computers and Records Not Accurate

Our review of seven agencies disclosed none of the organizations could account for all spare/surplus computers where internal or SAM II records show a storeroom or warehouse location. In addition, our review disclosed inaccuracies in internal and SAM II records. This situation occurred because personnel either failed to (1) track and account for spare/surplus computers, or (2) update internal and SAM II records accurately, or in a timely fashion. Table 2.1 depicts the number of computers on hand at warehouses or other storage facilities at the agencies reviewed, the number of computers we tested, the number of missing computers officials could not account for, and the number of incorrect internal and SAM II records.

Table 2.1: Missing Computers and Incorrect Records

Agency	Computers on Hand	Computers Tested	Computers Missing	Incorrect Records
Corrections	177	96	14	18
Social Services <sup>1</sup>	1,292	110	0	43
Health and Senior Services	225	55	12	36
Transportation	264	53	1	28
Mental Health <sup>2</sup>	230	253	29	41
Natural Resources	127	41	2	2
Public Defender	260	49	0	3
Total	2,575	657	58	171

<sup>1</sup> We tested for missing computers in one storage facility only. Officials had no records of computers in a second storage facility.

<sup>2</sup> See page 12, footnote 11, for additional information on quantity tested.

Source: SAO analysis

15 CSR 40-2.031 requires state agencies to maintain adequate fixed asset records which include the physical location in sufficient detail to readily locate the item, and the method and date of disposition for each fixed asset. The threshold for recording equipment on SAM II records is \$1,000.

## Corrections

Tests of SAM II records and computers located at the warehouse disclosed missing computers and incorrect records. For example, SAM II records showed 96 agency computers with a warehouse location. However, we counted 177 computers at the warehouse, 81 more than recorded on SAM II



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records. The property control officer researched the 96 computers and found:

- 14 computers (15 percent) could not be accounted for, and are considered missing. The original cost of the 14 computers totaled approximately \$33,500.
- 12 computers (12 percent) were at other locations within the agency, therefore, the SAM II location code was incorrect.
- 16 computers (17 percent) were in transit to surplus property to be sold.
- 6 computers (6 percent) had been sold, but the disposition date had not been recorded on SAM II records.
- 48 computers (50 percent) were located at the warehouse.

In total, SAM II had incorrect locations for 18 computers that had been accounted for—the 12 at other locations within the agency, and the 6 that had been sold. The agency's property control officer told us this situation likely occurred because information technology unit (unit) personnel did not prepare transfer documents when moving equipment to and from the warehouse, contrary to established policy. The official also said a former agency Assistant Director told him unit personnel should not have to complete transfer documents. This situation has caused most of the problems with accounting for items in the warehouse, and agency personnel do not know how many computers, new or old, are stored in the warehouse. In addition, SAM II records are not accurate, according to the official.

#### Additional problems at the warehouse

While testing computers at the warehouse on October 12, 2005, auditors observed the following:

- 10 new, boxed sound cards with a ship date of June 22, 2000.
- 56 new, boxed monitors received before June 2005.
- 20 new, boxed keyboards that had never been used due to incompatibility with existing equipment, according to the Assistant Director of Technical Services.
- 1 apparently new, boxed computer with an October 1996 manufacture date.
- 1 new, boxed monitor manufactured in 1997 in a pile of equipment ready to be sold as surplus property.

The Assistant Director of Technical Services told us his unit has not maintained a list of stored items and he has no idea what computer equipment is at the warehouse.

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## Social Services

The agency stores most of its spare computers in a storeroom and surplus computers for disposal at the Division of General Services Property Control Unit warehouse (General Services warehouse).<sup>5</sup> Testing at the storeroom where spare computers are stored disclosed the agency had accounted for 510 spare computers on internal records, but had not recorded all spare computers on SAM II records. Other testing disclosed the agency had not recorded all of the 782 surplus computers stored at the General Services warehouse on SAM II records. The agency also did not have complete internal records of surplus computers in the General Services warehouse. In addition, the agency has not identified unrecorded assets because the agency has not conducted an annual inventory of fixed assets for 3 to 4 years, according to General Services warehouse personnel.

Spare computers accounted for internally, but not always recorded on SAM II records

We counted 510 spare computers in the storeroom, which agreed with the number of spare computers shown on internal records. In other testing, we selected a random sample of 54 computers with property tag numbers to determine whether officials could account for these computers. Officials accounted for all 54 sampled spare computers.

We also tested to determine whether spare computers had been recorded on SAM II records. Although Social Services does not have written policy on criteria for recording fixed assets onto SAM II records, according to the IT manager, warehouse personnel record sensitive items costing over \$450 on SAM II records. We found 29 of 54 sampled computers (54 percent) had not been recorded on SAM II records. Original cost for 15 of the 29 computers<sup>6</sup> totaled approximately \$62,000, with each costing over the \$1,000 criteria for mandatory inclusion on SAM II records.

Surplus computers not always recorded on SAM II records

We counted 782 surplus computers intended for disposal at the General Services warehouse, most of which had been recorded on internal records. However, some had not been recorded on SAM II records. We selected a random sample of 56 computers with property tag numbers to determine whether these surplus computers had been recorded on SAM II records. We found 14 of 56 sampled computers (25 percent) had not been recorded on SAM II records. Original cost for 11 of the 14 totaled approximately \$20,000, with each costing over \$1,000.<sup>7</sup>

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<sup>5</sup>Division of General Services Property Control Unit warehouse personnel are also responsible for recording all department purchases on SAM II records at acquisition and conducting annual inventory.

<sup>6</sup>Cost data not available for 14 of 29 computers.

<sup>7</sup>Cost data not available for 3 of 14 computers.

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The agency has not documented procedures for recording new computer equipment or transfers on SAM II records, but officials told us the vendor applies property tag numbers to new computer equipment before it is shipped to the agency, and sends purchase information, including serial and tag numbers for each new computer, electronically, to the agency's IT unit. IT personnel record purchase information, including serial and tag numbers, and the location, on the agency's internal fixed asset record system. According to warehouse personnel, the IT unit provides this information to General Services warehouse personnel to record computer equipment costing more than \$450, including the location, on SAM II records. However, General Services warehouse personnel told us IT personnel had not always provided the purchase information, resulting in computers owned by the agency not being recorded on SAM II records.

According to the warehouse property control supervisor (supervisor), in the past, IT personnel sometimes 'tagged' new computers but did not notify General Services so the new computers could be recorded on SAM II. The supervisor told us procedures had recently changed so that all computers would be recorded on SAM II records. In discussing this issue with General Services warehouse personnel, some procedures changed in January 2006. However, as of June 2006, all new computers are still not being recorded on SAM II records because of a lack of procedural controls to ensure IT personnel send purchase information for new computers to General Services.

Surplus computers not  
identified at the warehouse

We found the agency could not identify all surplus computers at the General Services warehouse because the supervisor does not maintain records of computer equipment coming into the warehouse. The supervisor told us he has not had the resources or manpower to log and record all equipment coming into or leaving the warehouse, but does not believe this limitation has been a problem because of the low dollar value associated with the surplus equipment.

When the agency is ready to dispose of computers, department offices transfer the equipment and an equipment return form (GS-2) listing the computers, and tag and serial numbers for each, to the General Services warehouse. When the computers arrive at the warehouse, the driver gives the IT personnel the GS-2, which is used to process the surplus computers and record the disposition on internal records. However, IT personnel do not provide a copy of the GS-2 to the supervisor. Therefore, until computers have been processed, which could take several days or possibly weeks, the GS-2 is the only record of unprocessed computers at this warehouse. For example, 261 of the 782 computers at the warehouse during our review, had arrived days before, but had not been processed. The supervisor had no

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record or documentation of these computers at the warehouse, and no record of the computers' tag or serial numbers. The supervisor agreed that having a copy of the GS-2 until the computers are processed would provide a complete record of computers at this warehouse.

Once the computers are sold, surplus property forms showing the transfer of responsibility for the computers are returned to General Services warehouse personnel to record a disposal date on SAM II records. However, those surplus property forms have not been consistently returned, resulting in many computers that had been sold remaining on SAM II records, according to General Services warehouse personnel. In June 2006, the supervisor acknowledged this situation had been occurring, and told us the division is working on getting this problem resolved.

Inventory of computer equipment not conducted for years

The agency uses internal records to track and monitor the location of computer equipment, but SAM II records are used to conduct annual inventory, according to agency policy. However, General Services warehouse personnel responsible for conducting annual inventory and updating SAM II records, told us the agency has not inventoried computer equipment for 3 to 4 years because of a lack of time and resources. In addition, a reconciliation of computer equipment on internal records to SAM II records has not been done. Warehouse personnel told us not conducting inventory is one reason all agency computers had not been recorded on SAM II records and locations had not been updated.

When conducting an inventory, General Services warehouse personnel would send a list of non-expendable property recorded on SAM II records to each office inventory clerk, according to agency policy. Inventory clerks would conduct an inventory and notify General Services of new equipment not included on the list, and equipment on the list they no longer had because they transferred it or sold it. However, warehouse personnel told us there is not sufficient resources or time to locate purchase requests or other paperwork documenting the acquisitions, transfers or disposals in order to update SAM II records.

IT consolidation may not solve inventory problem

General Services warehouse personnel stated it will be a "mess" when the ITSD takes over and expects an accurate/proper inventory from the agency because a lot of new equipment, transfers and dispositions have not been recorded on SAM II records. An ITSD spokesperson told us ITSD plans to ask agencies to continue doing the annual inventory as the agencies had in the past. See page 19 for discussion on accountability and inventory procedures.

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## Health and Senior Services

SAM II records showed 640 computers at a Health and Senior Services warehouse. However, we counted 225 computers<sup>8</sup> leaving 542 (85 percent) unaccounted for at the warehouse. We randomly selected 55 computers with property tag numbers from SAM II records to determine whether officials could account for computers on SAM II with a warehouse location. We found:

- 12 of 55 (22 percent) sampled computers could not be accounted for by the agency. Original cost of the 12 missing computers totaled approximately \$41,600.<sup>9</sup>
- 36 of 55 sampled computers had been sold as surplus property or transferred to a different location, but SAM II records had not been updated.
- 7 of 55 sampled computers were at the warehouse.

According to the Director of Administration, the 12 missing computers had probably been sold as surplus property due to their age (acquisition dates range from 1996-2001). However, required paperwork had not been completed to record disposition on SAM II records.

The Assistant Director of Administration told us the SAM II records for transferred or sold computers had not been updated because the fixed asset employees' primary focus is to get all new property recorded on the SAM II records, tagged properly, and to track equipment transfers from one location to another.

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## Transportation

SAM II records showed 461 computers with a warehouse location. However, 197 of the 461 computers (43 percent) could not be located at the warehouse.<sup>10</sup> Further testing of 53 randomly selected computers with property tag numbers disclosed 29 computers could not be located at the warehouse. Officials subsequently verified the location of 28 of the 29 computers at other agency offices using utility software, but could not locate or account for 1 of the 53 (2 percent) sampled computers. Original cost for the missing computer was approximately \$1,450.

According to the procurement manager, 18 of the 29 missing computers had been moved from the warehouse to other locations, but the new location had not been updated on SAM II records. For another nine computers, personnel

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<sup>8</sup> Included 127 newly arrived computers that had not been recorded on SAM II yet.

<sup>9</sup> Included one server costing \$25,000.

<sup>10</sup> Of the 264 computers on hand, 152 had been recently sold and not picked up yet by the new owners.

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incorrectly changed the location on SAM II records to the warehouse after the computers had been transferred to a different office. For one computer, personnel mistakenly changed the location code on SAM II records when personnel developed new policies and procedures in mid-2005.

The Controller told us this situation occurred because of a lack of training and communication with employees responsible for updating the location of transferred equipment on SAM II records when procedures changed in mid-2005. In discussing this issue on August 16, 2006, the Controller told us the revised policies and procedures for updating computer locations on SAM II records have been drafted, but have not been finalized.

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## Mental Health

Testing at three Mental Health facilities disclosed the agency could account for most stored computers. However, the agency could not account for 29 (11 percent) of 253<sup>11</sup> computers on local facility records<sup>12</sup> showing a warehouse location. The original cost for 24 of the 29 computers totaled approximately \$27,400, according to SAM II records.<sup>13</sup>

The IT Director at one facility told us personnel did not log or otherwise maintain records of computers coming into or leaving the storage room. IT personnel at another facility told us the local records had not been updated to reflect the current location of some computers, or computers had been sold, but records had not been updated. IT personnel in charge of storeroom computers at the third facility told us "there are days when equipment comes in faster than we can get it logged."

## Internal and SAM II records not reliable

In other testing, we determined 63 of 230 computers (27 percent) in storerooms at the 3 facilities had not been recorded on internal records. In addition, of the 230 computers, 19 (8 percent) had not been recorded on SAM II records, and 22 (10 percent) had been recorded on SAM II, but showed disposal dates. The IT Director at one facility told us personnel had mistakenly recorded 15 of the 22 computers on SAM II records because they did not meet the criteria for mandatory recording. In an attempt to

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<sup>11</sup>Local facility records showed 253 computers with a warehouse location. Of the 253, personnel accounted for 57 at other locations and 29 could not be accounted for. In addition, 63 computers were on hand that were not listed on local facility records with a storeroom location, resulting in 230 Mental Health computers on hand, as shown in the table on page 6.

<sup>12</sup>At the time of our work, DMH was developing a department-wide IT tracking system. Because this tracking system was incomplete, we used local facility records as well as the new tracking system to conduct testing.

<sup>13</sup>Cost data was not available for five of the missing computers because the computers were not included on SAM II records of computers still owned by the agency.

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correct the situation, personnel then recorded disposal dates for the 15 on SAM II records, even though the department still owned them and they were available for use. Seven of the 22 with disposal dates met criteria for recording on SAM II, and were also still owned and available for use. In discussions with ITSD personnel on August 17, 2006, one official told us the only way to remove a previously recorded asset from SAM II records is to record a disposal date. The official further stated this procedure is proper for items that have been disposed of, but when it is done to remove assets previously recorded in error, it creates inaccurate records on SAM II because the state still owns the asset.

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## Natural Resources

Testing at Natural Resources disclosed the agency could account for most computers. SAM II records showed 127 agency computers at the warehouse on the day of our site visit, and we counted 127 computers at the warehouse. Further testing of 41 randomly selected computers with property tag numbers disclosed 39 of the 41 computers were located at the warehouse. However, personnel could not account for 2 of 41 sampled computers.

One official told us he believes the missing computers have been sold, but the previous fixed asset record system had not been updated to reflect a disposal date. When records were transferred to the new SAM II system, the records remained incorrect on the new system. The agency acquired one of the missing computers in 1985 and the other in 1993.

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## Public Defender's Office

SAM II records showed 273 computers with a storeroom location, and internal inventory records showed 272 computers with a storeroom location. However, we counted 260 computers in the storeroom.

The Public Defender Office's practice is to record computer equipment costing more than \$1,000 on SAM II records at acquisition. However, personnel do not update the location on SAM II records when the equipment is moved to a different location, according to the Comptroller. Instead, the IT Director told us the Public Defender's Office tracks computers by recording all computer equipment on an agency database and updating the location on those records when equipment is moved from one location to another.

We randomly selected 49 computers with property tag numbers showing a storeroom location on SAM II records to determine whether officials could account for all 49 computers. We found Public Defender IT personnel accounted for all 49 sampled computers with a storeroom location on SAM II records. Of the 49 sampled computers, 21 were in the storeroom, but 28 were not. Using utility software, IT personnel accounted for the 28 computers by verifying locations at other Public Defender offices. The IT

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Director told us SAM II records did not show the correct location for the 28 computers because the Public Defender's Office does not update locations on SAM II records.

Because the IT Director told us the Public Defender's Office tracked computers by updating internal records when equipment is moved from one location to another, we tested whether the location on internal records for the 49 sampled computers was correct on the day of our testing. Of the 49 sampled computers, the location on internal records was correct for 46 (94 percent) sampled computers. According to the IT Director, 3 of the 49 did not have the correct location because internal records had not been updated when those computers had been moved to other locations.

We also reviewed internal records maintained by the IT Director. Those records identified 9 computers as 'location unknown,' meaning personnel could not account for them. We located one of the missing computers in the storeroom, leaving 8 computers with an unknown location. The original cost of the 8 computers totaled approximately \$6,500.

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## Improvements Needed in Procurement of Computers

Improvements are needed in the procurement of computer equipment because not all agencies reviewed had formalized procurement guidance or policy. Some agencies also had not considered the cost-effectiveness of computer warranties, or of leasing computers in lieu of purchasing computers. In addition, some agencies lacked formal policies on how often to replace computers and for the removal of information from computers prior to disposal (sanitization).

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## Procurement guidance not always formalized

Our review of seven agencies disclosed Mental Health and the Public Defender's Office have not addressed the issue of IT procurement separately from general procurement policies. According to officials, Mental Health has not seen IT procurement policy as a priority needed to provide efficient and reliable IT services. The Public Defender's IT purchases would be covered under its regular procurement policy. The five other agencies formalized IT procurement policies, but we found those policies to be inconsistent and lacked common standards for the procurement of IT related hardware, software and services.

Standards for good IT security and control practices state: "Management should develop and implement a central procurement approach describing a common set of procedures and standards to be followed in the procurement of information technology related hardware, software and services."

As of May 2006, OA had not developed guidance, or required state agencies to develop standard formal policies for the procurement of IT equipment,



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Cost-effectiveness of  
shorter warranties and leasing  
not always considered

even though state law<sup>14</sup> gives authority to the OA to establish procurement procedures for electronic and automated data processing hardware, software, and support service. OA's only exercise of authority over IT procurement had been approving and awarding contracts for the procurement of IT equipment. An ITSD spokesperson told us ITSD had not developed a policy for IT procurement because the IT consolidation has not been completed. ITSD plans to standardize IT procurement procedures (see page 18 for additional discussion).

Transportation, Corrections, Natural Resources, Mental Health and Social Services had not formally considered the cost-effectiveness of shorter computer warranty periods. Although Transportation had not formally analyzed the cost-effectiveness of shorter warranties, the IT Director told us because of the failure rate of department computers and the expense of additional personnel to repair computers in a timely manner, officials believed the "no-questions asked" 3-year warranty would be the most cost-effective option. Therefore, officials decided to continue purchasing the 3-year warranty.

In addition, Transportation, Corrections and Natural Resources had not considered leasing versus purchasing IT equipment. However, several agencies had made these considerations:

- Health and Senior Services technical staff had explored a 90-day warranty, and found financial savings would not outweigh the cost. The agency currently leases all of its servers, with the exception of a production server, but prior research has not found leasing computers and laptops to be cost-effective, according to one agency official.
- In 2002 and 2004, Mental Health officials analyzed the cost effectiveness of leasing instead of purchasing computers. The agency's current purchasing costs have been considerably less than those for leasing, according to one agency official.
- The IT Director at the Public Defender's Office told us computers purchased through the state contract included a 3-year warranty period, and a shorter warranty period would not be less expensive. Also, the office had done a cost analysis on leasing versus purchasing and found the cost to be about equal. However, leasing presented ownership issues and maintenance

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<sup>14</sup> Section 37.005.9(5), RSMo.

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situations that would be cumbersome and counter-productive to business, according to the IT Director.

- A Social Services official told us the agency had leased computers about 8 years ago, but discontinued leasing because it was more expensive than buying computers. The agency had not considered the cost-effectiveness of shorter warranty periods.

Standards for good IT security and control practices state: "IT management should ensure that hardware and software acquisition plans are established and reflect the needs identified in the technological infrastructure plan."

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### Some agencies lack formal computer replacement and sanitization policies

Our review of the seven state agencies disclosed three lacked computer replacement policies, and the Public Defender's Office had not developed a formal policy on sanitizing computers prior to disposal. Agencies reviewed replaced computers at different intervals, with most replacements occurring between 3 and 5 years. One agency purchased a 4-year warranty to delay replacement to every 4 years, and another agency did not replace computers until they quit functioning.

Mental Health, Transportation, and Corrections have not adopted a formal computer replacement schedule.

- Mental Health's IT Director stated the advantage of a regular replacement schedule is predictability for technology change rate and for budgeting. In the real world the agency finds unpredictable budgets, unexpected demand for other services, and technology changes that may require earlier replacement or allow longer use cycles, according to the Director. The agency has stretched the life cycle of the majority of its current personal computer inventory into its fourth and fifth year without impacting capability and productivity for customers, according to the Director.
- Transportation senior management instituted an informal plan to replace computers every 3 years, based on industry standards, and after paying approximately \$50,000 a month to repair computers over 5 years old, according to the IS supervisor.
- Corrections has not replaced computers until they quit functioning, but does attempt to repair the non-functioning computers before deciding to replace them, according to one agency official. Although over 50 percent of agency computers

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are over 5 years old, the agency plans to limit the service of computers to 5 years.

The Public Defender's Office has not formalized sanitization policies

The Public Defender's Office has not formalized a policy for removing data from computers prior to disposal because officials believe the sanitization policy developed by the state's architecture committee, which they follow, is sufficient for the needs of that office, according to the IT Director.

The Missouri State Agency for Surplus Property requires information on computer hard drives be removed by an approved method of sanitization pursuant to Missouri's Adaptive Enterprise Architecture Compliance Component prior to disposal of computers through a public sale. In addition, the surplus property form listing computers to be sold requires the seller to certify sanitization has been done. Therefore, surplus computers must be sanitized if they are disposed of through the Missouri State Agency for Surplus Property. However, since the Public Defender's Office is not subject to the authority of OA, and not bound by OA's policies and procedures, it may sell surplus computers through other methods which would not require sanitization or statements that sanitization has been done.

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## Most Agencies Developed IT Strategic Plans

Our review of seven agencies disclosed that six—Transportation, Natural Resources, Mental Health, Corrections, Social Services, and the Public Defender's Office—had developed IT strategic plans. However, Health and Senior Services had not developed an IT strategic plan.

Officials with Health and Senior Services provided a report the department considers to be an IT strategic plan. The report, entitled "State of the State IT Report" enumerates the department's accomplishments since 2004, and not all were IT related. This report does not align the department's strategic business goals with its IT resources, nor does it include IT related long and short range goals, strategies, anticipated outcomes and ways to measure progress. Therefore, this report does not meet the criteria for an IT strategic plan.<sup>15</sup>

Health and Senior Services officials eventually addressed IT strategic planning when a service level agreement, which included IT strategic planning, was required by the state CIO as a part of the IT consolidation. Not until April 2006, did Health and Senior Services officials substantially complete their IT strategic plan; however, as of July 2006, it had not been signed by the state CIO or the agency.

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<sup>15</sup> *Information Technology Security Controls*, SAO, August 2005 (Report No. 2005-59) recommended Health and Senior Services develop a strategic plan for technology.

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## IT Operations Consolidated

Standards define a strategic information technology plan and include a minimum set of controls necessary to ensure effectiveness, efficiency and economy of resources.

With consolidation of state IT resources, the CIO is taking action to address IT strategic planning, standardization of procurement policy and procedures, and IT equipment ownership.

Prior to consolidation of IT resources, the state did not have a strategic plan focusing on information technology. However, in September 2005, ITSD published its statewide IT strategic plan, which follows best practices recommended by industry standards, and state guidance. In addition, most agencies have entered into service level agreements with ITSD, which set forth the responsibilities and IT goals of both the agencies and of the ITSD.

State guidance<sup>16</sup> for strategic planning states: "The success of strategic planning can be evaluated by progress toward achievement of outcomes and objectives. Strategic plans delineate these outcomes and objectives and provide methods for tracking progress in achieving these measures."

ITSD's IT strategic plan identifies three outcomes (1) effectively run IT resources and systems, (2) reliable IT systems, and (3) available IT resources. Strategies have been developed to achieve each outcome, as well as key measurements to determine if the outcomes have been achieved.<sup>17</sup>

The service level agreements between the ITSD and consolidating agencies include IT strategic planning at the agency level. The ITSD will work with agencies to develop IT related budgets, to build annual IT plans, set goals, develop strategies and develop a system of measurement.

### ITSD plans to standardize IT procurement policy

In addition to strategic planning, the ITSD plans to enter into a memorandum of understanding with consolidated agencies to address issues such as IT procurement/approvals, SAM II, property ownership and equipment tagging. OA's purchasing division has a formal written policy for procurement. However, according to an ITSD spokesperson, that policy will likely have to be revised for IT procurement. The spokesperson told us the ITSD plans to provide consistency and standards anywhere possible, including in the purchasing process. Section 37.005.9(5), RSMo, gives OA the authority to establish procurement procedures for electronic data

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<sup>16</sup> *Missouri Strategic Planning Model and Guidelines*, March 2002.

<sup>17</sup> State of Missouri Information Technology Services Division Strategic Plan 2005-2006 at <http://www.oa.mo.gov/itsd/cio/ITSDStrategicPlan2005-2006.pdf>.

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processing and automated data processing hardware, software, and support services.

The state CIO told us a computer replacement policy for the state has not existed. However, his goal is to implement a replacement policy, preferably on a 3- to 4-year cycle. According to the CIO, the level of funding for technology could be a limiting factor which could hamper a replacement policy. For instance, if an agency receives little funding for technology, it would be challenging to replace computers based on a replacement schedule.

In addition, the ITSD is investigating whether purchasing IT equipment is more cost-effective than leasing. The state's CIO told us he has met with a major computer corporation to determine whether purchasing IT equipment and taking on the responsibility for maintenance and repair is less costly than leasing. According to the CIO, this is a very complicated task which has not been accomplished, as of May 2006.

Another initiative to reduce costs is purchasing computer equipment with shorter warranty periods. The CIO has been exploring the option of buying computers with a 90-day warranty instead of 3 years in order to reduce the cost of ownership. However, vendors have not been interested in pricing computers with a 90-day warranty period, according to the CIO. Vendors have told the CIO computers would cost the same with 90-day warranty periods, 3-year warranty periods, or no warranty period.

ITSD assuming accountability  
for equipment ownership  
and inventory procedures

Prior to consolidation, agencies had responsibility for conducting inventory of computer equipment owned by the agency. With consolidation, ITSD has budget authority over IT purchasing, and will own computer equipment purchased after July 1, 2006. Ownership of key IT infrastructure acquired prior to July 1, 2006 will be transferred to the ITSD. Other equipment, such as personal computers, will remain agency property due to the expense of transferring ownership of computers that will be disposed of in 3 to 5 years.

The ITSD will be responsible for recording new computers and other IT equipment on SAM II records, as well as ensuring annual inventory of IT equipment is performed. However, computer equipment costing less than \$1,000 will not be accounted for by any method, or included in annual inventory, according to an ITSD spokesperson. This spokesperson told us the ITSD will be conducting inventory, using SAM II records, of Mental Health computer equipment. However, Corrections, Social Services, Natural Resources, and Health and Senior Services staff will be conducting annual inventory of computer equipment in those agencies. This approach is being used because IT employees responsible for inventory were not transferred to the ITSD for those four agencies. ITSD plans to evaluate agency inventory

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procedures, and if approved, those four agencies will conduct inventory in the same manner as they have in the past. If the ITSD does not approve the agencies' inventory procedures, the ITSD will provide the method and mechanism for agencies to account for IT equipment.

According to an ITSD spokesperson, the ITSD plans to develop an IT tracking system on which all IT equipment of consolidated agencies will be recorded. This tracking system will be used by help desk employees when trouble-shooting or helping users with problems, as well as performing certain utilitarian functions. For instance, software will be able to identify and locate a specific computer, determine whether it is logged-on to the network, whether it is under warranty, and how many trouble calls the computer has had. The system will also perform other information-gathering tasks and provide the ITSD more management controls over the state's IT equipment. However, this system will not be used for inventory purposes.

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## Conclusions

Agencies have a fiduciary duty to ensure stored computer equipment are accounted for properly. However, procedural weaknesses in recording purchases, relocations, and the disposal of computer equipment have resulted in some agencies not recording a significant number of computers on fixed asset records, not updating the location of computers, and not recording disposals on those records. Approximately 9 percent of stored computers tested could not be located by the agencies. In addition, approximately 26 percent of fixed asset records for stored computers tested had incorrect information because of unrecorded assets, incorrect locations, or errors related to the disposal of computers.

Mental Health had computers in storerooms which had disposal dates on SAM II records. Those computers probably would not have been included in past inventory work because that agency had used SAM II records to conduct inventory. Social Services has not conducted annual inventories for 3 to 4 years, and as a result, cannot account for, or identify, computers owned by the agency. Further, when agencies do not properly account for computer equipment by conducting annual inventories and reconciling IT equipment on hand with internal and/or SAM II records, the state risks losing control of that equipment. In addition, it may subject the state to the loss of computers by theft, as well as potential loss of sensitive records and data that may be stored on the computers.

Although most organizations reviewed had formalized procurement procedures, Mental Health and the Public Defender's Office did not. ITSD plans to adopt a standard policy on IT procurement. If successfully implemented, Mental Health will be subject to ITSD's governing policy for IT procurement. However, the Public Defender's Office has not been

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included in the state's IT consolidation, and will not be subject to ITSD's IT procurement policies.

In addition, some agencies had not considered potential advantages of shorter warranties, or leasing instead of purchasing computers. However, ITSD's consolidation plans include evaluating the cost benefits of leasing versus purchasing, shorter computer warranties, and a 3- to 4-year replacement cycle. ITSD's evaluations demonstrate its efforts to reduce overall IT costs.

Most agencies under review had formalized a policy to sanitize computers prior to disposal, however, the Public Defender's Office had not. Although the Public Defender's Office is required to sanitize computers prior to disposition through the Missouri State Agency for Surplus Property, there is no such requirement if computers are disposed of by other methods. Therefore, although officials do not believe it is necessary to formalize sanitization procedures, sound business practices dictate the Public Defender policy reflect the office's practices and procedures for removing data from computers prior to disposal.

Although most agencies reviewed had developed IT strategic plans, Health and Senior Services had not. However, ITSD plans on requiring agencies to work with it to develop IT related budgets, build IT annual plans, and develop IT strategies. If ITSD's consolidation plans are successfully implemented, it should resolve Health and Senior Services' lack of strategic planning.

If successfully implemented, IT consolidation goals and strategies described by the CIO should facilitate correction of most problems noted above. However, ITSD officials will face challenges in ensuring computer and other IT equipment is accurately reflected on SAM II records unless they take the lead in correcting deficiencies noted in this report. Future success will be dependent on ITSD's ability to successfully coordinate annual inventory work to account for computer equipment and ensure SAM II records are complete and accurate for stored as well as active computer equipment.

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## Recommendations

We recommend the Chief Information Officer:

2.1 Increase accountability for stored computers by doing the following:

- Strengthening internal controls and meeting statutory requirements to ensure fixed asset records are correct/adequate by updating fixed asset records to reflect the acquisition, re-location, and disposition of computer equipment in a timely manner. Also, locate or confirm the existence or loss of the missing stored computers, and adjust fixed asset records accordingly.
- Performing a reconciliation between stored computer equipment and fixed asset records.

2.2 Establish formal IT procurement policy and procedures consistent with generally accepted industry standards to:

- ensure the procurement approach includes a common set of procedures and standards to be followed in the procurement of information technology related hardware, software and services.
- ensure acquisition planning reflects the needs identified in the technological infrastructure plan.
- include consistent computer replacement policies.
- include internal controls to ensure compliance with these policies and procedures.

2.3 Ensure annual inventories of computer equipment for consolidated agencies are conducted, and internal and SAM II records in regard to acquisitions, relocations and disposals are corrected.

We recommend the Director of the Public Defender's Office:

2.4 Formalize its policy to reflect the office follows the state's policy and procedures for sanitization, and uses the approved software to remove data from computers prior to disposal by any method.



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2.5 Establish formal IT procurement policy and procedures consistent with generally accepted industry standards to:

- ensure the procurement approach includes a common set of procedures and standards to be followed in the procurement of information technology related hardware, software and services.
- ensure acquisition planning reflects the needs identified in the technological infrastructure plan.
- include consistent practices in computer replacement.
- include internal controls to ensure compliance with these policies and procedures.

We recommend the Director of the Department of Transportation:

2.6 Increase accountability for stored computers by doing the following:

- Strengthening internal controls and meeting statutory requirements to ensure fixed asset records are correct/adequate by updating fixed asset records to reflect the acquisition, re-location, and disposition of computer equipment in a timely manner. Also, locate or confirm the existence or loss of the missing stored computers and adjust fixed asset records accordingly.
- Performing a reconciliation between computer equipment and fixed asset records.

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## Agency Comments

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### Chief Information Officer Comments

2.1 *We agree with the recommendation to ensure SAM II fixed asset records are correct, updated and reconciled in a timely manner. We are currently exploring options that would allow ITSD to track and locate fixed assets in the most efficient and cost effective manner. We anticipate implementation of a solution during FY 2007. Maintaining correct, updated and reconciled fixed asset records will likely require continued cooperation with agencies since not all agencies transferred personnel and funds to support fixed assets inventory and related updates.*

2.2 *Within Executive Order 03-26 the Chief Information Officer was given authority to establish a state enterprise information technology architecture that addresses the technology environment for the State of*

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*Missouri with respect to information technology principles, governance, technology and standards. The current state enterprise information technology architecture process provides standards and guidelines for the procurement of information technology related hardware, software and services.*

*Although a consistent computer replacement plan can be developed, the user's needs and rate of technology advancement can impact the need for replacement and the replacement schedule. In addition, the availability of funds can also present obstacles in providing for consistent computer replacement.*

- 2.3 *We agree with the recommendation that annual fixed asset inventories be conducted and records updated appropriately. Agencies that did not transfer personnel who conduct the annual physical inventory agreed to both locate and cooperate in updating ITSD's SAM II fixed asset records when conducting the agency's annual physical inventory. ITSD will coordinate this process annually.*

#### **Public Defender's Office Comments**

- 2.4 *The Office of the State Public Defender currently follows the state's policy and procedures for sanitization and uses the approved software to remove data from computers prior to disposal. The Office of the State Public Defender agrees with the State Auditor that their policy for following the state's sanitization policy should be formalized and has done so, effective 8/16/2006.*

- 2.5 *The Office of the State Public Defender IT procurements has followed their agency-wide purchasing procedures effective date since 04/01/82. The Office of the State Public Defender agrees with the State Auditor that Public Defender should establish a consistent yet separate procurement policy for IT purchases and has done so, effective 8/22/06.*

#### **Department of Transportation Comments**

- 2.6 *MoDOT revised the policies and procedures for recording IT equipment to strengthen internal controls over such equipment. Revised policies were published on September 8, 2006. Training on the new procedures will be held September 12 and September 28, 2006. The missing computer has been located and the fixed asset records updated accordingly.*

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*We perform an annual physical inventory of all fixed assets and reconcile to the fixed assets record. The 2006 inventory was completed in May.*